

In the Claims:

A complete listing of claims in the instant application is provided below as follows:

1 1. (Currently amended) A system for reducing the amount of oxygen  
2 in an oxygen-containing gas within a closed environment,  
3 comprising:

4       a source of hydrogen gas;

5       a controllable means for mixing, in response to a control  
6 signal, a selected amount of said hydrogen gas with a portion of  
7 said oxygen-containing gas from said closed environment to form a  
8 first gas mixture that includes hydrogen and oxygen;

9       a catalyst coupled to said controllable means for receiving  
10 said first gas mixture, said catalyst causing a reaction between  
11 said hydrogen and at least a portion of said oxygen in said first  
12 gas mixture wherein a second gas mixture is formed and returned to  
13 said closed environment, said second gas mixture (i) having a  
14 lower percentage of oxygen than said first gas mixture, and (ii)  
15 containing oxygen in an amount sufficient to make said second gas  
16 mixture breathable; and

17      at least one oxygen sensor positioned in said closed  
18 environment and coupled to said controllable means for generating  
19 said control signal when oxygen levels of said oxygen-containing  
20 gas in said closed environment reach a threshold level defined for  
21 an ambient pressure in said closed environment.

1 2. (Original) A system as in claim 1 wherein said source contains  
2 said hydrogen gas in its pure form.

1 3. (Original) A system as in claim 1 wherein said source of said  
2 hydrogen gas comprises a metal hydride material.

1 4. (Original) A system as in claim 1 wherein a volume percentage  
2 of said hydrogen gas in said first gas mixture is less than  
3 approximately one percent.

1 5. (Original). A system as in claim 1 wherein said catalyst is a  
2 precious metal.

1 6. (Original) A system as in claim 5 wherein said precious metal  
2 is selected from the group consisting of palladium and platinum.

1 7. (Original) A system as in claim 1 wherein said reaction caused  
2 by said catalyst is defined by a reaction of one-half mole of said  
3 oxygen in said first gas mixture with one mole of said hydrogen in  
4 said first gas mixture to produce water vapor and heat.

1 8. (Currently amended) A system for reducing the amount of oxygen  
2 in an oxygen-containing gas within a closed environment,  
3 comprising:

4       a source of hydrogen gas under pressure;

5       a controllable valve having an input and an output, said  
6 input coupled to said source, said controllable valve dispensing a  
7 variable amount of said hydrogen gas from said input to said  
8 output in accordance with a control signal;

9       a chamber coupled to said output of said controllable valve  
10 for receiving therein said variable amount of said hydrogen gas  
11 so-dispensed;

12       means coupled to said chamber for drawing a portion of said  
13 oxygen-containing gas from said closed environment into said  
14 chamber wherein said variable amount of said hydrogen gas and said  
15 portion of said oxygen-containing gas combine to form a first gas  
16 mixture that includes hydrogen and oxygen;

17       a catalyst coupled to said chamber for receiving said first  
18 gas mixture, said catalyst causing a water vapor-producing  
19 reaction between said hydrogen and at least a portion of said  
20 oxygen in said first gas mixture wherein a second gas mixture is  
21 formed and returned to said closed environment, said second gas  
22 mixture (i) having a lower percentage of oxygen than said first  
23 gas mixture, and (ii) containing oxygen in an amount sufficient to  
24 make said second gas mixture breathable; and

25 at least one oxygen sensor positioned in said closed  
26 environment and coupled to said controllable valve for generating  
27 said control signal when oxygen levels of said oxygen-containing  
28 gas in said closed environment reach a threshold level defined for  
29 an ambient pressure in said closed environment.

1 9. (Original) A system as in claim 8 wherein a volume percentage  
2 of said hydrogen gas in said first gas mixture is less than  
3 approximately one percent.

1 10. (Original) A system as in claim 8 wherein said catalyst is a  
2 precious metal.

1 11. (Original) A system as in claim 10 wherein said precious  
2 metal is selected from the group consisting of palladium and  
3 platinum.

1 12. (Original) A system as in claim 8 wherein said source of said  
2 hydrogen gas under pressure is maintained outside of said closed  
3 environment.

1 13. (Original) A system as in claim 8 wherein said reaction  
2 caused by said catalyst is defined by a reaction of one-half mole  
3 of said oxygen in said first gas mixture with one mole of said  
4 hydrogen in said first gas mixture.

1 14. (Currently amended) A system as in claim 8 further comprising  
2 a pressure sensor for measuring said ambient pressure inside said  
3 closed environment, said pressure sensor coupled to said at least  
4 one oxygen sensor ~~for adjusting~~ wherein said threshold level is  
5 adjusted in accordance with said ambient pressure so-measured.

1 15. (Currently amended) A method of reducing the amount of oxygen  
2 in an oxygen-containing gas within a closed environment,  
3 comprising the steps of:

4 monitoring oxygen levels in said closed environment;  
5 generating a control signal when said oxygen levels in said  
6 closed environment reach a threshold level defined for an ambient  
7 pressure in said closed environment;

8 mixing, in response to a control signal, a selected amount of  
9 hydrogen gas with a portion of said oxygen-containing gas from  
10 said closed environment to form a first gas mixture that includes  
11 hydrogen and oxygen;

12 exposing said first gas mixture to a catalyst capable of  
13 causing a reaction between said hydrogen and at least a portion of  
14 said oxygen in said first gas mixture wherein a second gas mixture  
15 is formed, said second gas mixture (i) having a lower percentage  
16 of oxygen than said first gas mixture, and (ii) containing oxygen  
17 in an amount sufficient to make said second gas mixture  
18 breathable; and

19 dispensing said second gas mixture into said closed  
20 environment.

1 16. (Original) A method according to claim 15 wherein said  
2 reaction produces water vapor.

1 17. (Original) A method according to claim 15 wherein a volume  
2 percentage of said hydrogen gas in said first gas mixture is less  
3 than approximately one percent.

1 18. (Original) A method according to claim 15 wherein said step  
2 of mixing comprises the steps of:

3 providing an open chamber in said closed environment; and  
4 injecting said hydrogen gas into said open chamber under  
5 pressure to draw said oxygen-containing gas into said open  
6 chamber.

1 19. (Currently amended) A method according to claim 15 further  
2 comprising the steps of:

3 measuring said ambient pressure inside said closed  
4 environment; and  
5 adjusting said threshold level in accordance with said  
6 ambient pressure so-measured.